FEB 24 1926

STATISTICAL BULLETIN
Metropolitan Life Insurance Co.

VOL. VI. NOVEMBER, 1925 No. 11

THE DEATH TOLL OF MATERNITY.

The experience of the Metropolitan Life Insurance Company during the last fourteen years, in the field of maternal mortality, is remarkable for the very slight improvement that has occurred in contrast with the very marked betterment that the policyholders have experienced with respect to so many other diseases. The importance of maternal conditions is emphasized by the fact that they rank, among white women, aged fifteen to forty-four years, second to tuberculosis among the causes of death. The trend of these maternal conditions is only slightly downward among the nearly four million white women, ages fifteen to forty-four, insured in the Company's Industrial Department. As will be observed in the first chart on page 3, the high points of the mortality were reached in 1918, 1919, and 1920. These were years characterized by the prevalence of influenza. Since 1921, however, the rates have continuously fallen and are perceptibly below those of the earlier years of the period beginning with 1911. Although the tendency is now encouraging, the improvement over the entire period has been relatively slight.

The several diseases and conditions under this head have behaved differently. In the first place, the "accidents of pregnancy" (the definitely *ante-partum* conditions, abortions, miscarriages, ectopic gestation, etc.) have shown a slightly upward trend; and the "accidents of labor" (including malpresentation, "difficult labor," dystocia, cæsarean section and other operative interference) a more pronounced rising tendency. Both of these conditions react to the prevalence of influenza; but the latter, in particular, has registered much higher deathrates in the last four years of the period than were recorded prior to the influenza epidemic.

On the other hand, puerperal septicemia shows a gratifying decline. The influenza epidemic did not affect the mortality for

this disease. In fact, the lowest rate during the entire series of fourteen years was experienced in one of the influenza years. There was an evident, but not very marked, decline in puerperal albuminuria, which like septicemia, was not affected by influenza. The slight improvement that has occurred in the puerperal diseases as a group must be ascribed, then, to the declines in the mortality from puerperal septicemia and albuminuria and convulsions. These are the very conditions which would be expected to respond to the better and increasing care women are receiving during pregnancy from the Visiting Nursing Service of the Company and from other public health agencies.

There is one factor bearing on the situation which must not be passed by without mention, namely, the influence of the declining birthrate upon the observed deathrates from puerperal causes. Every drop in the birthrate automatically produces a decline in the maternal mortality. This decline in the birthrate suggests that the exposure is properly measured, not by the number of women of childbearing age, but by the number of maternity cases occurring. Unfortunately, we have not the necessary data to compute results on this basis, but the trends disclosed above are sufficiently well defined to give assurance that the correction applied for influence of the changing birthrate would leave our conclusions essentially unchanged.

Deathrates from Puerperal Diseases and Conditions. White Women, Ages 15-44 Years. Experience of Industrial Department. Metropolitan Life Insurance Company, 1911; 1915 to 1924.

Disease or Condition	Deaths per 100,000 exposed—ages 15-44 years										
	1924	1923	1922	1921	1920	1919	1918	1917	1916	1915	1911
Total puerperal diseases and conditions.....	59.1	62.4	66.1	68.5	81.4	71.5	101.3	65.3	62.6	63.3	70.1
Accidents of pregnancy	5.3	6.2	5.9	5.3	11.8	11.3	27.0	5.5	4.6	6.1	6.1
Other accidents of labor	7.2	8.6	8.8	8.3	12.9	12.8	24.3	6.2	6.2	6.1	8.2
Puerperal septicemia...	22.5	23.5	24.7	29.6	29.2	22.2	25.7	26.1	25.3	24.8	30.6
Puerperal albuminuria and convulsions.....	14.9	14.6	16.5	16.2	17.5	17.0	17.0	18.8	18.3	16.9	17.1

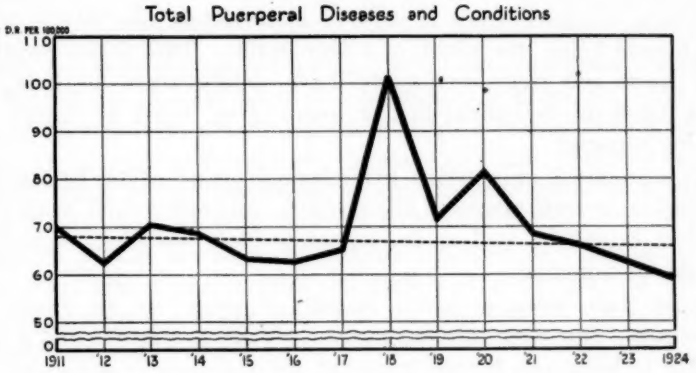
PUERPERAL DISEASES AND CONDITIONS

DEATHS PER 100,000 WHITE WOMEN, AGES 15 TO 44 YEARS

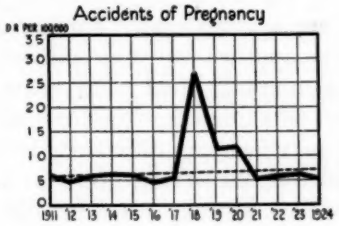
METROPOLITAN LIFE INSURANCE COMPANY, INDUSTRIAL DEPARTMENT

1911 TO 1924

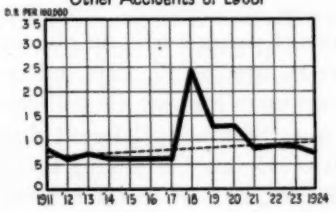
Total Puerperal Diseases and Conditions



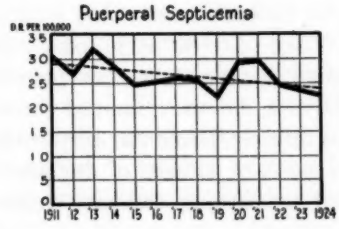
Accidents of Pregnancy



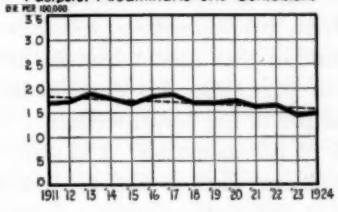
"Other Accidents of Labor"



Puerperal Septicemia



Puerperal Albuminuria and Convulsions



NOTE - *Trend lines for first three graphs computed with year 1918 omitted*

THE VALUE OF HUMAN LIFE.

The life insurance expert is often faced with the problem of setting a value, in dollars and cents, upon that which, to some, may appear essentially incapable of such mercenary appraisal, namely, the human individual. It will not be contended that man in all his aspects can be equated to a sum of money, large or small. But on the other hand, it is beyond dispute that in certain respects a man or a woman is a very definite asset, during a part of life, and an equally definite liability at other periods. There is thus a fairly clear cut problem—and a very important one—of obtaining a numerical estimate, even if only an approximate one, of the value of a human being, the worth of a human life. This is the question that courts and juries frequently have before them in fixing a value upon an individual life, or, more often, upon an injury to earning capacity.

It is proposed, at intervals, in forthcoming issues of this BULLETIN, to consider several phases of the problem thus raised; and, with this in view, it will be well at the outset to clear our ideas regarding certain fundamentals.

First then, when we speak broadly of value, we are guilty of vagueness. Our terms are incomplete. Value is relative, and if the word is to have any definite meaning, we must specify not only the person valued, but also for whom in particular the individual has the value in question. For there are a considerable number and variety of persons who, in one way or another, value an individual. There is, first of all, that individual himself. Just what value he may set upon his own life will depend on a number of circumstances. The same person, at different times, may feel very differently in this matter. He may be willing to sacrifice all his worldly goods to save his life; or, as our suicide statistics show, he may value his life, in an evil moment, at less than nothing. But there are others who have an interest in his continued existence: first his family, his wife and children, his immediate relatives. Their interest is in part sentimental; in this aspect human life may appear altogether priceless. But in part, also, his dependents have a definite financial interest in the life of the bread-winner. This interest forms the very corner-stone of life insurance; it is also the basis of awards of damages to dependents when a life is destroyed or earning capacity reduced through the fault of other persons.

To take another step into the wider circle of human interdependence, a man's business associates have a close interest in his

welfare; whether it be as his employers, or as his subordinates or employees. So corporation insurance has come into being. And finally, spreading now to the outermost circle, a man is an asset to the community, to the state, and to the world at large. He is the producer of goods, the creator of wealth in the state.

It is clearly seen then, that the valuation of a man is not one problem but many problems. If it is to be solved at all, we must find an answer not to one question, but to a number of questions.

Man has much in common with the industrial aids, machines, manufacturing plants and so forth, of which he makes use to conduct the business of life. Like them he has a "cost of installation," which corresponds to the period of his infancy and adolescence, during which he is prepared for service; an item of running expenditures, and an ultimate term of expiration. If there are ways and means known to the accountant for evaluating manufacturing plants and other industrial enterprises, the same or similar methods can be applied more or less effectively to appraise the value of a human individual. And we shall have to reckon with first cost, running expenses, and a sinking fund against the time of expiration. On the credit side of the account we shall have such items as current earnings, unpaid services rendered, participation in the upkeep of population, and so forth.

The logical course to adopt in the study of the value of man is, evidently, to follow his career chronologically from the cradle to the grave; to count the cost and strike its balance against earning power. The first item is one of expenditure—the cost of being born. We shall present some data upon this subject in our next issue.

TESTS OF PHYSICAL FITNESS.

Several years ago, the medical profession in and out of the insurance world was profoundly interested in the claims of Dr. GEORGES DREYER, of Oxford, that he had developed a simple method of determining the physical fitness of individuals. Dr. DREYER thought that a ready test could be devised from the inter-relationships between four bodily measurements, namely, weight, height-sitting or stem-length, chest-girth, and vital capacity as measured by the spirometer. DREYER expressed these relationships for "normal" people in a series of simple formulæ. Each one of these formulæ gave the value of one of the measures in terms of the others. From the tables which he prepared Dr. DREYER thought that it would be possible to read off what the measurements of a "normal" individual

should be from any one of the four that might be given. Obviously, if experience could confirm Dr. DREYER's contentions, there was a ready method at hand for distinguishing those who were physically fit from those who were not, a matter of the greatest interest to insurance organizations and to other groups interested in health examinations and more broadly, in public hygiene.

To test out the validity of these claims, the Association of Life Insurance Medical Directors appointed a committee in 1922 to inquire into the subject and to throw what light they could upon the problem through a study of the mortality experience of a group of insured lives whose measurements were available. A series of three reports have been made by this committee, in not one of which could confirmation of the DREYER claims be established. In the first, made in 1923, it was found that many individuals who showed serious impairment were classed by DREYER'S criteria as "normal," and nearly one-third of the group studied which showed no impairment, were classed by the criteria as "abnormal."

The second report made in 1924 was concerned with an investigation into the mortality experience of a group of overweights with due regard to their spine-lengths. In making these mortality tests, the Committee was favored by having access to the records of the Union Central Life Insurance Company, Cincinnati, Ohio. The medical department of that Company had collected for all policy issues from 1887 to 1908 the spine-length measures, in addition to the measures usually taken during life insurance medical examinations (weight, height, chest and abdominal girth). The spine-length measures were taken by that Company, because it was thought that eventually data could be gathered which would prove to be useful in selecting risks for life insurance. It was found that relative spine-length was a satisfactory substitute for the stem-length or sitting-height measurement of DREYER. A group of thirty thousand overweights whose weight and spine-lengths were known showed that only among tall overweights was the mortality experience more favorable among persons with long spines than among persons with short spines; whereas, among overweights of medium height and overweight short men, those with short spine-lengths appeared to have better mortality than those with long spine-lengths. In other words, for these latter two height groups, the DREYER criteria fell down completely.

The 1925 investigation, which was more particularly concerned with the relation of chest girth in addition to spine-length as a

criterion of fitness, was equally fruitless in discovering any justification for the DREYER contentions. Regardless of the classing of the materials by chest-girth, tall overweights still showed lower mortalities in the long spine-length class, and short men and men of medium height (overweights) showed the lower mortality readings in the lower spine-length classes. It was expected that persons with large chest-girths would show the more favorable mortality ratios. On the contrary, the actual results of the test tables showed favorable mortality among persons with the smaller chest-girths and less favorable mortality ratios for persons with the higher chest-girth readings. Combining the results of the 1925 study for relative spine-length and chest-girth, it was found that the best mortality ratios prevailed for overweight short men and for men of medium height among *short* relative spine-length classes and for chest-girths *below* average. For overweight tall men, the mortality was best among *long* relative spine-length groups and for chest-girths *below* average!

The findings of the Committee during the past three years suggest that no dependence can be placed upon the original DREYER tables* in practical life insurance underwriting. It was expected to find from the assumptions of DREYER that the more favorable mortality ratios would be disclosed among persons with relatively long spines and with chest-girths above average. But, in general, the efforts of the Committee led to facts pointing to a contrary conclusion, except in a minor way for tall overweights. It follows conclusively that, as matters stand at the present time, we should not be justified, either on grounds of actual physical examination findings, or from the mortality studies, in using DREYER'S tables or formulæ in practical life insurance work. After all, there seems to be only one good way to determine physical fitness and that is through thorough physical examination and a full statement of the patient's personal and medical history. There seem to be no good short-cuts to an approximation of physical fitness any more than it is possible to determine mal-nutrition in children through the exclusive use of so-called standard tables of height and weight.

HEALTH RECORD FOR OCTOBER, 1925.

The October deathrate (8.0 per 1,000) is one of the lowest ever recorded for that month among the industrial populations of the United States and Canada. A marked decline was recorded from

*DREYER, GEORGES. *"The Assessment of Physical Fitness."* Paul B. Hoeber, New York, 1921.

the figure for October, 1924 (8.5); and the mortality also showed a drop from the preceding month. This latter decline occurred at a time of the year when we usually experience a small seasonal increase.

All of the more important causes of death, save diarrheal diseases and accidents, registered lower deathrates than for October a year ago. In the case of tuberculosis, the reduction amounted to 12.6 per cent.; for cancer, 9.1 per cent.; for cerebral hemorrhage, 27.3 per cent.; for heart disease, 11.0 per cent.; for pneumonia, 8.7 per cent.; and for Bright's disease, 3.3 per cent. In the case of diarrheal diseases, on the other hand, there was an increase of 23.4 per cent.; but this is due, in part, to the larger number of infants insured this year, and does not indicate an actual, serious, rise in the deathrate for these conditions.

The automobile fatality record is unquestionably getting worse each month. No less than 306 Industrial policyholders lost their lives during October. These deaths correspond to a deathrate of 20.8 per 100,000, a new maximum for this cause of death *for any month of any year*, and exceeding by four per cent. the previous peak of 20.0, reached only last month. The suicide and homicide rates showed considerable reductions both from October a year ago and from September. Accidents, as a group, recorded practically the same rate as in October, 1924, but registered a substantial decline as compared with September of this year.

The general deathrate for the large cities of the United States in October was 11.7 per 1,000. This is an increase over the figure for September and is also slightly higher than for October a year ago. As compared with September, there was increased prevalence of diphtheria, measles, scarlet fever and smallpox, with fewer recorded cases of malaria, whooping cough, poliomyelitis and typhoid fever. Compared with October a year ago, there was more measles, poliomyelitis, typhoid fever and whooping cough, with fewer cases of diphtheria, malaria, scarlet fever and smallpox.

There were outstanding increases in case-reports of diphtheria, as compared with September, in Michigan and in North Carolina. In the former, case-reports rose from 187 in September to 410 for the first four weeks of October; in North Carolina, the increase was from 457 to 903 cases. In Hatteras, North Carolina, a town of approximately 600 population, diphtheria cases affected 22 homes, and Navy Medical Officers went by aeroplane to the village in response to a call for assistance. Other more or less severe outbreaks appeared at

Cumberland, Maryland; Middletown, Ohio; Cleveland, Ohio; Bear River, Utah; and on Deal Island, Maryland.

There was greater prevalence of influenza in several States. Illinois showed the greatest increase: from 49 cases reported during September to 172 for the first four weeks of October. There is still no evidence of any alarming prevalence of this disease in either the United States or Canada.

There were increases in case-reports of measles from a number of States. In Massachusetts, particularly, 924 cases were reported for the first four weeks of October against 229 in September. Smaller increases occurred in Michigan, Illinois and Connecticut. In Ashtabula, Ohio, children under fifteen were barred from picture shows, Sunday schools and other public gatherings to prevent the spread of measles. The schools continued to operate.

The situation with reference to poliomyelitis is more favorable than in September. More or less severe outbreaks were reported from Louisville, Kentucky; Tiffin, Ohio; in the vicinity of Eden, Montana, and from Scotsguard, Saskatchewan.

Scarlet fever was especially prevalent during October in Indiana and Iowa. In the former, the number of case-reports rose from 125 for September to 390 for the first four weeks of October; and in Iowa, from 44 to 136. There was an outbreak of the disease in Hamilton, Ont.; in Salamanca and Attica, New York, and Mad River Township, Ohio, it was necessary to close schools, because of this disease.

Case reports of typhoid were fewer in October. The outbreak in Sandusky, Ohio, to which we referred in the October BULLETIN, is reported under control. At Alston, a small town in Michigan, there was an outbreak of 20 cases. It is reported that no ex-soldier, who had been vaccinated during the World War, contracted the disease.

Smallpox was slightly more prevalent in October. In Bloomington, Illinois, the situation became serious enough to cause vaccine virus to be rushed from Chicago, Indianapolis, and other cities. Several cases were discovered in an orphanage at Woonsocket, Rhode Island.

About 50 cases of an obscure ailment, with one death, occurred in the vicinity of Collinsville and Maryville, Illinois. The first reports of this outbreak attribute it to the use of dairy products from cows that had eaten snakeweed.

Among the important health activities of the month, the following may be mentioned. The Tennessee State Department of

Health has organized a Division of Epidemiology. The Division of Maternal and Infant Hygiene has been expanded and named the Division of Child Hygiene and Public Nursing. The work of the Division of Venereal Disease Control has been divided among other divisions and a Section on Public Health Education organized to take its place. The United States Public Health Service is making a thyroid survey in Connecticut at the request of the State Department of Health. The primary purpose is to ascertain the percentage of thyroid enlargement and, incidentally, to study its relation, if any, to focal infection. A goiter survey of Massachusetts is also contemplated. The health authorities of this State are concerned to know whether there is an undue prevalence of endemic goiter in Massachusetts; and if this proves to be the case, the next step will be to establish its relationship to the iodine contents of the drinking water and of the soil. In Washington, D. C., a meeting of the Directors of the District Tuberculosis Association was held to consider the higher tuberculosis deathrate among negroes, which, in the last five years, has averaged almost five times that for the white population. The Rock Island Railroad has planned a campaign for eliminating malaria along its right of way to Arkansas, Louisiana, Oklahoma and Texas. At the same time, a survey of the Rock Island will be made to eliminate other insanitary conditions.

The following table shows the mortality among the Industrial policyholders for October, 1925; September, 1925; October, 1924, and the year 1924.

METROPOLITAN LIFE INSURANCE COMPANY.

Deathrates* per 100,000 for Principal Causes, Premium-paying Business in Industrial Department. (Annual Basis.)

MONTHS OF SEPTEMBER, 1925; OCTOBER, 1925, AND OF OCTOBER, 1924.

CAUSES OF DEATH	RATE PER 100,000 LIVES EXPOSED*			
	Oct., 1925	Sept., 1925	Oct., 1924	Year 1924
TOTAL—ALL CAUSES	796.1	841.6	850.9	905.2
Typhoid fever	6.9	8.6	6.3	4.4
Measles	.7	.9	.8	7.2
Scarlet fever	2.0	.9	1.7	4.4
Whooping cough	7.1	9.1	4.9	7.4
Diphtheria	9.5	7.5	11.3	13.1
Influenza	6.6	5.4	5.8	16.0
Tuberculosis (all forms)	80.9	86.9	92.6	104.2
Tuberculosis of resp'y system	70.9	75.3	82.1	92.3
Cancer	64.6	68.6	71.1	70.2
Diabetes mellitus	13.7	13.1	15.6	14.8
Cerebral hemorrhage	43.1	46.1	59.3	60.1
Organic diseases of heart	103.6	100.4	116.4	123.4
Pneumonia (all forms)	52.3	39.2	57.3	88.6
Other respiratory diseases	10.0	10.0	12.8	13.8
Diarrhea and enteritis	60.6	87.5	49.1	32.2
Bright's disease (chronic nephritis)	61.5	60.5	63.6	65.3
Puerperal state	12.3	14.3	15.0	16.8
Suicides	6.8	7.4	7.4	7.2
Homicides	6.7	8.0	7.4	7.1
Other external causes (excluding suicides and homicides)	63.3	69.3	62.8	62.5
Traumatism by automobiles	20.8	20.0	17.3	15.7
All other causes	183.8	197.9	189.7	186.5

*All figures include infants insured under one year of age.

Correspondence on the subjects discussed in these BULLETINS, may be addressed to: The Editor.

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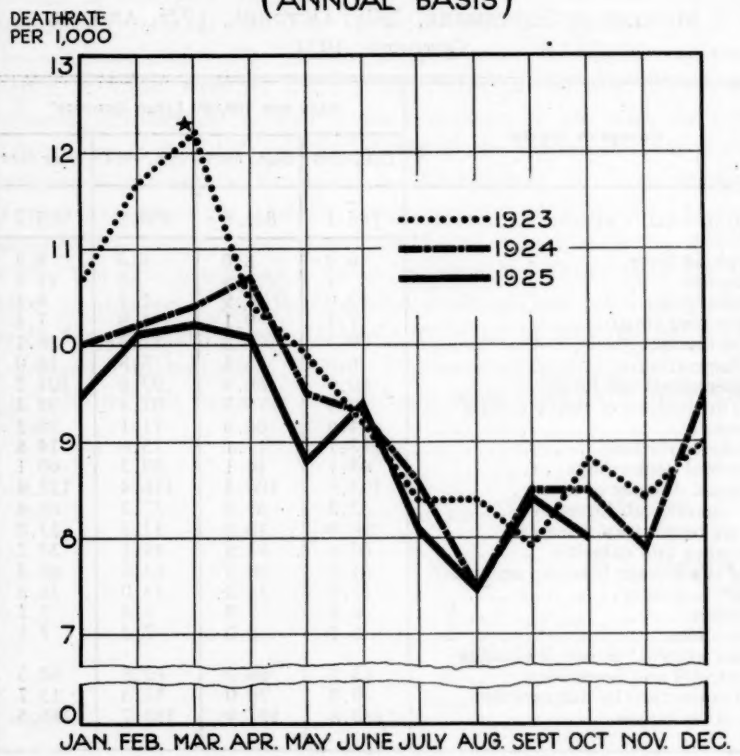
DEATHRATE PER 1000 *in* SPECIFIED MONTHS *of* 1923, 1924, 1925

METROPOLITAN LIFE INSURANCE COMPANY
INDUSTRIAL DEPARTMENT
(ANNUAL BASIS)



	1923	1924	1925		1923	1924	1925
JAN.	10.7	10.0	9.5	JULY	8.4	8.6	8.1
FEB.	11.7	10.2	10.1	AUG	8.4	7.5	7.5
MAR.	12.2	10.4	10.2	SEPT	7.9	8.5	8.4
APR.	10.4	10.7	10.1	OCT	8.8	8.5	8.0
MAY	9.9	9.5	8.8	NOV	8.4	7.9	
JUNE	9.2	9.3	9.4	DEC.	9.0	9.5	

★ *Beginning with March, 1923, figures include mortality of infants under one year of age.*

METROPOLITAN LIFE PRESS—77430—PRINTED IN U.S.A.